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(54) IMPROVEMENTS IN OR RELATING TO DISPOSABLE PANTS AND  
 METHOD OF MAKING SAME

- (71) We, CONSORTIUM GENERAL TEXTILE, DEPARTEMENT PANSEMENTS WILLOT, of 59 Rue de la Vignette, Linselles (Nord) France a French body corporate, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—
- The invention relates to disposable pants and to a method of manufacture of disposable pants, e.g. from non-woven fabric or plastics material such as polyethylene, the articles thus obtained being moreover intended to receive an absorbent pad such as a baby's napkin or a sanitary napkin.
- For holding babies' napkins there are known simple sheets of plastics material which may be folded and then fixed at the waist by various means. Napkin holders are also known which comprise press-studs or the like as fastening, the waist also being provided in some cases with elastic means to provide tension. Unfortunately, the holders manufactured hitherto were unable to be produced continuously on simple machines. Complex and expensive installations were necessary driving the cost price of the article to unacceptable levels for a disposable article.
- One of the objects of the present invention is to obviate these disadvantages.
- According to one aspect of this invention there is provided disposable pants, adapted to receive an absorbent pad such as a baby's napkin or sanitary towel, and comprising a sheet of plastics material or non-woven fabric cut out to define spaced first and second parallel bands, adapted to constitute the front and rear parts respectively of the pants, and an intermediate connecting band adapted to constitute the crotch of said pants, a layer of adhesive material provided along each of the two opposed edges of one of the two parallel bands and a protective strip covering each of the said layers of adhesive material, said layers of adhesive material, upon removal of their protective strips being engageable with said sheet to ensure connection between the two parallel bands constituting the front and back parts of the pants.
- According to another aspect of this invention there is provided a method of making the disposable pants as referred to in the foregoing paragraph comprising the steps of advancing an elongate sheet of plastics material or non-woven fabric, applying a layer of adhesive material along each of the two opposed longitudinal edges of the sheet, cutting the sheet into sections each having two spaced parallel bands connected by an intermediate connecting band adapted to constitute the crotch of said pants, such that along each of two opposed edges of one of the two parallel bands in each section there is a layer of adhesive material, and providing a protective strip covering each of said layers of adhesive material.
- A preferred embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:
- Figure 1 is a plan view of an elongate sheet in the course of being cut for the purpose of manufacturing a pair of pants;
- Figure 2 is a perspective view of a finished pairs of pants for wear;
- Figure 3 is a plan view of pair of pants shown flat, after cutting;
- Figure 4 is an enlarged cross-sectional view along the line IV—IV of Figure 1; and
- Figure 5 is a cross-sectional view, similar to that of Figure 4 and showing an alternative method of securing the adhesive.
- Figure 6 is a cross-sectional view, similar to that of Figure 4 and showing another method of securing the adhesive.
- The disposable pants according to the invention are manufactured from an elongate sheet 1 of plastics material or non-woven fabric, which is first introduced into a machine which applies two adhesive tapes 2 to the longitudinal edges of the sheet. These tapes are secured to leave a portion of an adhesive face 2a projecting beyond each edge. The projecting portion of each tape has its adhesive face 2a pro-

ected by a protective tear-away strip 3 (Figure 4) which may or may not overlap the sheet 1 of plastics material. The strip 3 is removed when it is required to expose the adhesive face.

The sheet 1 is advanced to a cutting station where cut-outs are made which are symmetrical. As can be seen in Figure 1, at this station two semi-circular cut-outs 4 are made defining a connecting band 7 which subsequently forms the crotch. At the same station, two cuts 5 may be made, as shown in Figure 1, to reduce the width of the front part of the pants subsequently obtained. In the same step, a tear line 6 is established, allowing separation of the pants cut from the sheet.

The portions on either side of the band 7 define spaced first and second parallel bands 10 and 11 adapted to constitute the front and rear parts of the finished pants. The band 10 constituting the rear part having a length greater than the band 11 constituting the front part. A pair of parallel incisions 8 are provided in each band to define a strap 8a. An insert pad 9 (Figure 3) can be easily inserted between the two straps 8a and the sheet and can thus be retained in its position.

In the alternative embodiment shown in Figure 5, the adhesive tape 2 comprises two adhesive layers, i.e. an upper adhesive layer 2a covered with the protective strip 3 and a lower adhesive layer 2b secured to the sheet 1. The adhesive tape 2 may thus be fixed entirely to the sheet 1. The protective strip 3 has a width slightly greater than that of the adhesive layer 2a, for ease of removal. In another form shown in Figure 6, the adhesive layer 2a is applied directly to one face of the sheet 1 along each of its longitudinal edges. The layer is protected by a protective strip 3 greater in width than the adhesive layer 2a.

After cutting along a tear line 6, the finished pants are flat, as shown in Figure 3.

When placing the pants on infants, it is merely necessary to bring the parallel bands 10 and 11 towards one another, bend around the body the two opposed edges 10a and 10b of the back band 10 (Figure 2), remove the pieces of protective backing 3 located on the two adhesive tape sections 2 fixed to the said two opposed edges 10a and 10b and apply the opposed edges 11a and 11b of the front band 11 to the thus uncovered adhesive layers 2a in the desired position to obtain optimum tightening about the waist.

The periphery 13 of the leg openings, that is to say the edge of each semi-circular cut-out 4, is appropriately treated to give it elasticity. Alternatively the pants may comprise elastic means along the edges of the intermediate connecting band constituting the crotch.

Owing to the method of manufacture according to the invention, the pants are produced at a low cost price, for use as a disposable article.

#### WHAT WE CLAIM IS:—

1. Disposable pants, adapted to receive an absorbent pad such as a baby's napkin or sanitary towel, and comprising a sheet of plastics material or non-woven fabric cut out to define spaced first and second parallel bands, adapted to constitute the front and rear parts respectively of the pants, and an intermediate connecting band adapted to constitute the crotch of said pants, a layer of adhesive material provided along each of two opposed edges of one of the two parallel bands and a protective strip covering each of the said layers of adhesive material, said layers of adhesive material, upon removal of their protective strips being engageable with said sheet to ensure connection between the two parallel bands constituting the front and back parts of the pants.

2. Pants according to Claim 1, wherein each of the first and second parallel bands includes at least one pair of incisions defining a strap allowing the insertion of an absorbent pad between the said strap and the rest of the sheet.

3. Pants according to Claim 1 wherein an adhesive tape is secured along each said opposed edge of one of the parallel bands with a portion of the tape extending beyond the edge.

4. Pants according to Claim 3, wherein the protective strip on each adhesive tape has a width greater than the portion of the adhesive tape projecting beyond the edge of the band, such that the protective strip partly covers the band without adhering thereto.

5. Pants according to Claim 1, wherein two adhesive tapes are provided one along each of two opposed edges of one of the two parallel bands of the pants, each of said tapes having a first layer of adhesive material in contact with the plastics or non-woven fabric sheet constituting the pants and a second layer of adhesive material covered by a protective strip.

6. Pants according to Claim 1, wherein along each said opposed edge of one of the parallel bands of the pants a layer of adhesive material is applied directly and covered by a protective strip.

7. Pants according to Claim 1, wherein the said one of the parallel bands having the adhesive layers, constituting the back part of the pants when worn, has a length greater than the other parallel band, constituting the front part of the pants when worn.

8. Pants according to Claim 1, comprising elastic means along the edges of said intermediate connecting band constituting the crotch.

9. A method of making disposable pants as claimed in Claim 1, comprising the steps of advancing an elongate sheet of plastics material or non-woven fabric, applying a layer of adhesive material along each of the two opposed longitudinal edges of the sheet, cutting the sheet into sections each having two spaced parallel bands connected by an intermediate connecting band adapted to constitute the crotch of said pants, such that along each of two opposed edges of one of the two parallel bands in each section there is a layer of adhesive material, and providing a protective strip covering each of said layers of adhesive material.
10. A method as claimed in Claim 9, wherein the said parallel bands are cut so as to form in each of them at least two parallel incisions defining a strap to retain an absorbent pad.
11. Disposable pants as substantially described and illustrated in the accompanying drawings.
12. A method of manufacture of disposable pants as substantially described and illustrated in the accompanying drawings.

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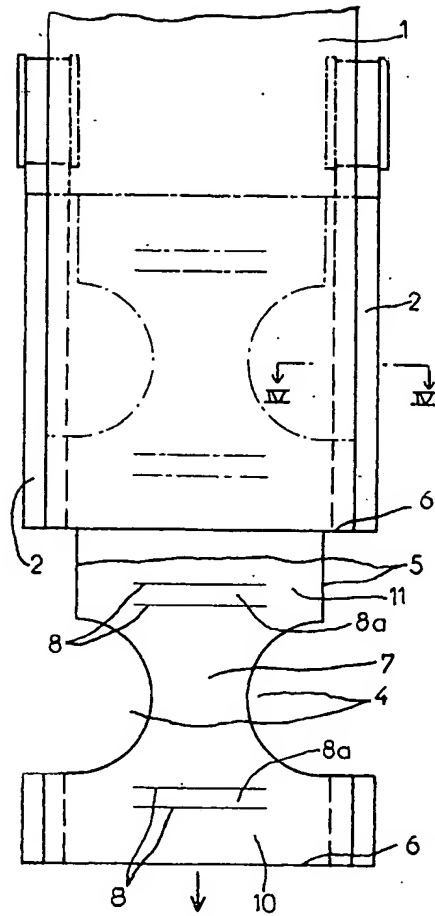


Fig.1

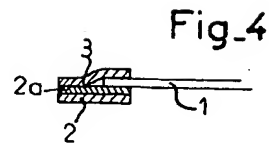


Fig.4

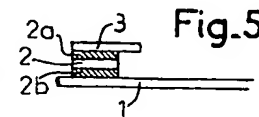


Fig.5



Fig.6

Fig.3

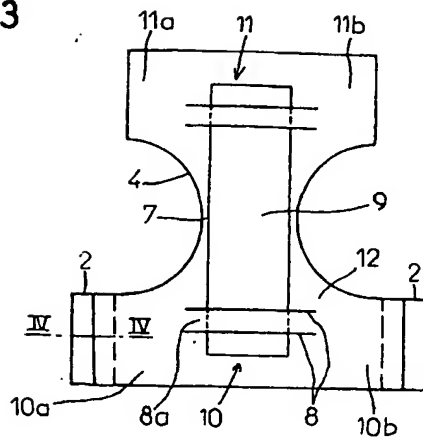


Fig.2

